Space Weather Forecast

Issued on Sunday, 28 January 2024 at 13:16 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Chance of G1 Minor Storms either late on 29 or 30 January from onset of fast solar winds. Chance of isolated Moderate flares.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Activity has been Low, with only Common-class flares observed. There are five sunspot regions on the visible disc, including two numbered regions near the western limb and three smaller and less complex regions. No Earth-directed CMEs were observed, but multiple CMEs were seen emanating from the far side of the Sun.

Solar Wind / Geomagnetic Activity: Solar winds have been at ambient levels. Interplanetary magnetic field strength was initially weak, with the important north-south component only varying weakly, but has increased gradually over the last 24 hours and has been largely moderate since around 28/0300UTC. Geomagnetic activity was Quiet.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background with no solar radiation storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Mainly Low, with a chance of an isolated Moderate-class flare.

Solar Wind / Geomagnetic Activity: No coronal mass ejections are currently forecast to affect Earth. Solar wind speeds are forecast to increase from background values to reach slightly elevated or elevated values either late on 29 or into 30 January due to a connection to a fast solar wind. Geomagnetic activity is forecast to be mainly Quiet, but may reach Active or G1/Minor Storm levels due to the onset of the fast solar wind.

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) is forecast to persist at background with no solar radiation storms occurring. There is a very slight chance of this flux rising above background if any notable flares occur from any of the sunspots near the west limb.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	20	30	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	30	30	30	30
Very Active	R3 to R5 X	No	2	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	5	2	2
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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